From: John A Cima (Generation - 34) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JOHN171D28]
Sent: 3/21/2016 4:53:07 PM
To: Jason E Williams (Services - 6) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JASO508559]; Michael A Glagola (Generation - 34) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Mic0210]
CC: Doug Wight (Generation - 34) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Dougla7]; J.Klamut@gaiconsultants.com; s.quinlan@gaiconsultants.com; Michael J Winters (Generation - 34) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MIC1082]
BCC: John A Cima (Generation - 34) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JOHN171d28]
Subject: RE: Closure and Groundwater review Questions
Attachments: Possum Point Ash Pond D Design & Construction History - 03-21-16.pdf; 1987-89 Ash Pond D Expansion - Boring Locations.pdf; Ash Pond D - Design Groundwater Protection Plan.docx; 715932-AB-103[S001].TIF; 715932-AB-104[S001].TIF; 715932-AB-105[S001].TIF; 715932-AB-106[S001].TIF; 715932-AB-107[S001].TIF; 715932-AB-108[S001].TIF; PP Ash Pond D Dam - Final Slurry Wall QC Report and Design Wall Profile.pdf; PP Ash Pond D - Clay Liner Specification - June 1987.pdf

Jason/Mike,

Attached please find a copy of a document that I sent to Jason last week which provides an overview of the design and construction history of Ash Pond D at Possum Point. If it hasn't already been shared with PWC, it might answer some of their general questions. In response to their specific questions below, I offer the following:

PWC Question 1: We would like a plan view orientation of the Cross section R-R and plan view of Pond D with the location of the slurry wall.

Dominion Response: Please see Figure #4 of the attached Design and Construction History document for plan view of Pond D and the design location of the slurry wall. Please see attached Original Design Drawing 715932-C- 121 (Boring Locations) for the location of Cross Section R-R. It was cut across the approximate centerline of the proposed dam based on the borings from the geotechnical investigation performed during dam design.

PWC Question 2: Is there design and/or as-built information on the slurry wall to include:

a. **Wall location**

b. **Construction details**

c. **Permeability specifications and construction control**

d. **Was seismic stability analysis for the closure plan extended to the slurry wall integrity.**

e. **Is there a horizontal and vertical permeability specs and/ or testing for the wall.**

f. **Is there any construction detail regarding how and where the constructed clay liner is tied to the Stratum C clay layer.**

Dominion Response: Please see below for responses to Items a through f.

a. Wall location – Figure 4 of the attached Design and Construction History document shows the design location of the wall (taken from original Design Drawing 7158-C-132 – Design Groundwater Protection Plan [attached]). Adjustments to the design location were made in the field during construction to be able to encapsulate the then-existing ash field at approximate elevation 55+/-. The As-Built slurry wall location is shown on attached drawings 715932-AB-103 through 715932-AB-108.

b. Construction details – The slurry wall was generally constructed generally along the elevation 55 contour to encapsulate the ash field from the 1960's Pond D configuration (see attached Design and Construction History). It was excavated with a long arm backhoe within a bentonite and water slurry to keep the excavation open. Excavated soils were stockpiled adjacent to the approximately 2 feet wide trench, mixed and blended with additional bentonite, and backfilled into the trench, displacing the bentonite and water slurry. The bottom of the trench was keyed a minimum of two feet into the Stratum E clay layer (See Cross Section R-R, Figure 3 of attached Design and Construction History document). The bentonite and excavated soil backfill was designed to have a low permeability of at least $1x10^{-7}$ cm/sec and quality control testing during construction verified these values.

c. Permeability specifications and construction control – Dominion developed a performance specification which specified a wall backfill permeability of at least $1x10^{-7}$ cm/sec and solicited bids to slurry wall contractors. The wall was constructed by Geo-Con, Inc. and attached is a Final Slurry Wall QC Report of the wall construction and permeability testing performed by the contractor and monitored by Dominion's on site QA/QC firm (CTI Consultants). Visual verification was made to insure that the wall terminated at least two feet into the Stratum E clay and the attached summary report includes an as-built wall profile that shows the wall depth and key. We have not been able to locate the original performance specification.

d. Was seismic stability analysis for the closure plan extended to the slurry wall integrity – The closure plan design analyses did not look at specific slurry wall integrity during a seismic event. The slurry wall is a very low permeability barrier of native soils mixed with processed bentonite clay and water. It is Dominion's opinion that the wall is quite flexible and the seismic acceleration values are such that ground displacements are very small. The soils surrounding the slurry wall were included in the seismic stability analyses and factors of safety were acceptable and it is believed that there is little chance of slurry wall degradation during the design seismic event.

e. Is there a horizontal and vertical permeability specs and/or testing for the wall - As noted above, there was a performance specification that the blended native soils and bentonite backfill was required to meet a permeability of at least $1x10^{-7}$ cm/sec. There was no distinction made between horizontal and vertical permeability. Permeability test results are included in the attached Final

Slurry Wall QC Report from Geo-Con, Inc. In addition, Dominion has volumes of QA/QC inspection and testing performed on the dam, liner and slurry wall construction. These are all in hard copy format and can be scanned if additional information is needed/desired.

f. Is there any construction detail regarding how and where the constructed clay liner is tied to the Stratum C clay layer – There is no formal construction detail but QA/QC records indicate that a two foot deep trench was excavated in the natural clay soils and the compacted liner materials above or below were extended into the trench. Specific QA/QC records can be reviewed and scanned if additional detail is required. Attached is a copy of the 1987 Clay Liner Specification that governed the construction of the liner.

Hopefully these answers will meet the needs of PWC. As noted, we can delve deeper into the QA/QC records if additional detail is desired. If you have any further questions or if there is a need to meet face to face with PWC, I am available to do so.

Regards,

John

John A. Cima P.E.

John A. Cima, P.E.

Power Generation Engineering

Phone: (804)-273-3045; Cell: (804)-912-5432

From: Michael A Glagola (Generation - 34)
Sent: Friday, March 18, 2016 5:37 PM
To: John A Cima (Generation - 34); J.Klamut@gaiconsultants.com; s.quinlan@gaiconsultants.com
Cc: Doug Wight (Generation - 34); Jason E Williams (Services - 6)
Subject: Fwd: Closure and Groundwater review Questions

John Cima could you take a look at the first two questions?

John Klamut could you take a look at the second two questions?

If we need to discuss in a conference Monday morning please advise.

Would you both be able to have answers for these by Monday afternoon?

Jason is this acceptable for timing?

Thanks,

Mike
Sent from my iPhone

Begin forwarded message:

From: "Jason E Williams (Services - 6)" <Jason.E.Williams@dom.com>
Date: March 18, 2016 at 4:50:05 PM EDT
To: "Michael A Glagola (Generation - 34)" <michael.a.glagola@dom.com>
Cc: "Christine Harris (Generation - 34)" <christine.harris@dom.com>, "Cathy C Taylor (Services - 6)" <cathy.c.taylor@dom.com>
Subject: Fwd: Closure and Groundwater review Questions

Mike - PWC has provided some of their comments/questions. Can you and/or GAI help us respond?

Thanks

Jason

Sent from my iPhone

Begin forwarded message:

From: "Smith, Thomas J." <tsmith@pwcgov.org>
Date: March 18, 2016 at 4:42:39 PM EDT

To: "Jason E Williams (Services - 6) (Jason.E.Williams@dom.com)" <Jason.E.Williams@dom.com>
Cc: "Cathy C Taylor (Services - 6) (cathy.c.taylor@dom.com)" <cathy.c.taylor@dom.com>, "Michael E. Fiore" <mfiore@resourceintl.com>
Subject: FW: Closure and Groundwater review Questions

Jason

We appreciate you providing information on the Possum Point closure project and we are trying to get you comments ASAP. Our engineer has a few questions and requests for additional information. Can you respond and check and see if this information is available?

Let us know. Thanks.

Thomas Smith

Solid Waste Division Chief

Prince William County Public Works

5 County Complex Court, Suite 250

Prince William, VA 22192

(703) 792-6252

FAX (703) 792-4617

email: *tsmith@pwcgov.org*

From: Fiore, Michael E. [mailto:mfiore@resourceintl.com]
Sent: Friday, March 18, 2016 4:34 PM
To: Smith, Thomas J.
Cc: Hollos, Ed; Creech, Anthony W.
Subject: Closure and Groundwater review Questions

Tom,

Based upon our continuing review of the Dominion Resource's Possum Point Closure Plan and Ground Water Monitoring Program and in the interest of maintaining an open dialogue we have some technical question for consideration. We have presented them in no specific order.

Slurry Wall – Based upon recent information providing a cross section R –R of Pond D (1988), it appears that while statements have been made that Pond D is lined, we find that the liner departs from conventional understanding of a continuous constructed liner. A slurry wall is shown as a connection from one natural clay layer (Stratum C) and a deeper clay layer (Stratum E). This liner is a combination three (3) separate and distingue methods; a constructed clay liner, a vertical impermeable slurry wall, and a non-constructed natural clay layer. Our questions deal with the lack of specific information about this element of Pond D and are as follows:

1. We would like a plan view orientation of the Cross section R-R and plan view of Pond D with the location of the slurry wall.

2. Is there design and/or as-built information on the slurry wall to include:

    a. Wall location

    b. Construction details

    c. Permeability specifications and construction control

    d. Was seismic stability analysis for the closure plan extended to the slurry wall integrity.

    e. Is there a horizontal and vertical permeability specs and/ or testing for the wall.

    f. Is there any construction detail regarding how and where the constructed clay liner is tied to the Stratum C clay layer.

3. The Closure plan indicates that a GLC will be used, as necessary, to overlap areas where the on-site CQA personnel feel the Clay Liner is not meeting its construction and operational intent. Is there any more information regarding the field procedures regarding how this determination will be made to insure an adequate seal with the Liner and the Cap.

4. Dominion indicates that they will be doing "modified assessment monitoring (metals only)" groundwater monitoring after the ponds are closed. However, the Groundwater Monitoring, Sampling and Analysis Plan (attachment VII) of the Part B application indicates that Detection Monitoring will occur. We request clarification.

Mike

Michael E. Fiore, P.E.

President

804-550-9201 (voice)

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